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ABSTRACT

It was hypothesized that the perception of the nonverbal behavior of the teacher held by the student may differ from the perception held by an outside observer. This study was designed to compare participant and nonparticipant observers' perception of teacher nonverbal behavior as having encouraging or discouraging affect qualities during a teacher-learning process. Five ninth-grade teachers volunteered to participate in the study. Seven students were randomly selected from the stimulus teacher's class, and seven former teachers were chosen as the nonparticipant observers. Video tapes of regular classroom behaviors of teachers and their interaction were made. After editing, the tapes were viewed by the students of the class (participants) and the nonparticipating observers. Questionnaires designed to reveal how the nonverbal behaviors of the teacher were interpreted by the students and observers were filled out following the viewing. The findings suggest that participants and nonparticipants do not perceive the nonverbal behavior of the teacher similarly. The findings of the study also show that it is possible to define and demonstrate the relevance of a number of nonverbal cues that each group of raters used as predictors or reasons for their assessment of the teachers' behavior. Appendix A presents the table used for rating teacher behavior and the cues responsible for ratings. Appendix B contains a presentation of the responses of the students to the questionnaire. (JD)

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ABSTRACT

Participants' Versus Nonparticipants' Perception of Teacher Nonverbal Behavior

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The purpose of the study was to seek answers to the following questions:

(1) Are similar nonverbal teacher behaviors perceived by participant and nonparticipant observers in assessing the affective quality of teacher nonverbal behavior?

(2) What nonverbal cues are identified by the participant and the nonparticipant observers in assessing the affective quality of teacher nonverbal behaviors?

(3) To what extent do the nonverbal cues identified by participant and nonparticipant observers predict the variance in participants' and nonparticipants' assessment of teacher nonverbal behavior?

Five ninth grade mathematics teachers were video-taped in actual classroom situations. Seven students were randomly selected from each classroom to serve as participant observers. Seven former teachers who were doctoral students in education at the University of Houston served as nonparticipant observers. A total of thirty-five observations per group (participant-nonparticipant) were made on all five teachers. The Teachers Nonverbal Behavior Rating Scale was developed to collect the data.

The treatment of the data involved the testing of two hypotheses employing a one way analysis of variance and a multiple regression technique. This analysis produced the following results:

1) There was a statistically significant difference ($p \leq .001$) between the participants' and nonparticipants' perception of teacher nonverbal behavior.

2) There was statistically significant difference ($p \leq .05$) between the variance accounted for in the participants' and the nonparticipants'

rating of teacher nonverbal behavior as predicted by the presence of the nonverbal cues identified by the participants and nonparticipants.

In general the data revealed that students tend to rate the nonverbal behavior of their teacher in a consistently higher degree than did the nonparticipant observers. Data also revealed that the nonverbal behavior of the teacher had definite but different qualitative aspects for the participants and the nonparticipants observers.

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Need For The Study

One of the first assumptions to be made concerning teaching-learning situations is that the pattern of behavior of the teacher affects the pattern of behavior of the learner. One way in which the active involvement and participation of the learner is elicited is the manner in which the teacher communicates within the structure of the teaching-learning situation, along with how the learner perceives this communicative act of the teacher. Since all communication is characterized by qualitative responses whether on a conscious or unconscious level, affective communication is a significant area for investigation. More specifically, participant versus nonparticipant perception of the affective qualities of teacher nonverbal communication as it relates to the teaching-learning process is a much needed area of investigation, thus is the major concern of this study.

Research in the area of teacher verbal behavior seems to support the assumption that the perception of the teacher's verbal behavior held by the participant observers and the nonparticipant observers are not the same. This assumption is reported in studies by Tuckman (1970), Evans (1970) and Solomon (1964). These studies using verbal behavior as the reference point found discrepancies in the perception held by the nonparticipant observer.

The importance of the role of nonverbal communication in the classroom has been supported by research (Love and Roderick, 1971; Galloway, 1962; Jourard, 1958; Mitzel and Robinowitz, 1952). This research suggests that

students will continuously derive meaning from their teachers' nonverbal behavior.

Additionally, several researchers have already established that the perception of certain aspects of nonverbal communication is a function not only of sender characteristics but also of certain dispositions and attitudes within the perceiver; and of certain characteristics of the relationship between the sender and the perceiver in communication theory (Knapp, 1972; Ellsworth, 1968; Ekman, 1965).

It is apparent that the relationship the student has with the teacher is quite different than the relationship an outside observer has with the teacher. In view of the findings of Knapp, Ellsworth, and Ekman, and the writings of perceptual psychologists, it may be hypothesized that the perception of the nonverbal behavior of the teacher held by the student may differ from the perception held by an outside observer.

Until now, researchers of nonverbal communication in education have, with one or two exceptions, used the nonparticipant observer to make inferences about the student's perception of teacher nonverbal behavior as it relates to the teaching-learning process. Very little attention has been given to the learners' (participants') perception of the nonverbal behavior of the teacher, for only two studies, Raymond (1973) and Whitfield (1973), could be found which reported student perceptions of teacher nonverbal behavior. Although Teresa (1971) reported differences in teachers' and students' perceptions of the nonverbal behavior of teachers, an actress was used to provide the stimulus behaviors.

The limited studies reported, although they may be significant, have not utilized the perceptions held by the student of the nonverbal behavior of the teacher in direct comparison to the perception of an outside observer, in the natural classroom setting. Thus, a void exists in the research on teacher nonverbal behavior regarding comparative studies on participant (the learner) and nonparticipant perceptions of the nonverbal behavior of the teacher in the teaching-learning process in a natural classroom setting. The literature on perception and nonverbal communication suggests that the perceptions of the participant and the nonparticipant may differ, therefore it was imperative that a comparative study of participant and nonparticipant perceptions of teacher nonverbal behavior be undertaken.

Research Design

The review of the literature on perception suggests that a person experiencing a communicative effect in certain contextual situations, may not perceive the act in a similar manner as an outsider who has not experienced the effect. The participant observers in this study were those students who had experienced or had been with that teacher most of the school year. The nonparticipant observers had no experience with the stimulus teachers used in the study. These conditions met the requirements of design three, The Static-Group Comparison, as described by Campbell and Stanley (1963).

This research design is termed pre-experimental, and is a design in which a group that has experienced X (teacher behavior) is compared with one which has not, for the purpose of establishing the effect of X.

The Design:

$$X = \frac{O_1}{O_2}$$

X (treatment = teacher behavior); O_1 and O_2 (the two groups compared-participant versus non-participant).

Teacher Sample

After having met with school administrators and ninth-grade teachers from a suburban school district, it was determined that random selection of teachers was not feasible. Consequently, five ninth-grade teachers of mathematics volunteered to participate in the study, hence this teacher sample can be construed as neither random nor representative. Each of the five indicated that they used the lecture-discussion mode of presentation.

Participant Observer Sample

To assure that an adequate sample of each stimulus teachers' students were present in the study, seven students were randomly selected from each stimulus teacher's class. This constituted a total of thirty-five participant observers, who were selected by use of a table of random numbers.

Ninth grade students were selected for two reasons: (1) These students are with the same teacher the entire school year which provides for familiarity between the teacher and student. (2) The degree of sophistication required to respond to the paper and pencil type instrument used in the study necessitated the use of the ninth grade level student.

Non-Participant Observer Sample

Seven former teachers who were doctoral candidates in the College of Education at the University of Houston were chosen as the nonparticipant observers. Criteria for selection of the nonparticipant observers was based on a minimum of two years teaching experience in the public schools which assured nonparticipant familiarity with teacher and student behaviors, and their af-

fective meanings in the teaching-learning situation. The seven nonparticipant observers responded to the instrument for all five teachers independently and thus constituted a total of thirty-five observations equal in number to the observations made by the participant observers.

Instrumentation

Since the writer could locate no instrument for gathering the type of data necessitated by the research, a Teacher Nonverbal Behavio· Rating Scale (TNBRS) was developed. The scale, which used a time unit means to record responses was sectioned into two parts: (a) Rating, and (b) Cues responsible for rating. (See Appendix A).

The rating scale was used to determine the degree of encouraging/discouraging behavior of the teacher, on a scale ranging from one-strongly discouraged, to six-strongly encourage, and used a Likert scoring technique.

Twelve non-verbal cues were obtained from two major sources: (1) Research on nonverbal communication; and (2) a Pilot Questionnaire. An open end category, "other cues used" was used to identify cues used for ratings which were not one of the twelve listed. For the list of non-verbal cues used, see Appendix A.

The pilot questionnaire was designed by the researcher and was administered to seventy-five ninth grade students of teachers fitting the description of the teacher sample used in the study, proper. The results of the pilot study indicated that the behaviors listed on the TNBRS were dominant in the classroom and could be interpreted as encouraging/discouraging (See Appendix B).

The criteria usually associated with behavioral observation measures provided the rationale for the procedures used to estimate the reliability

and ascertain the validity of the instrument (TNBRS). The reliability estimate was tested using two methods:

1. Analysis of variance to estimate reliability of measure (adapted from Winer, 1962, p. 126).
2. Reliability in terms of percentage of agreement between raters (adapted from Victoria, 1968).

The estimated reliability for the mean of k measurements defined by Winer (1962) is $r_k = 1 - \frac{\text{MS within people}}{\text{MS between people}}$. This formula was applicable to this study for ascertaining estimates of reliability using the ANOVA procedures. With k = 70, the reliability estimate was $r_k = .96$. The mean percentage of inter-rater agreement is shown in Tables 1 and 2.

The data presented in these two tables indicate that the accuracy with which the teachers' behavior were communicated far exceeded chance expectation. The results demonstrate incontrovertibly that nonverbal affective communication is a stable measureable phenomenon.

Validity of the TNBRS was concerned with both content and construct. For content validity, the review of literature on nonverbal communication has indicated that the list of nonverbal behavioral cues appearing on the TNBRS is a representative sample of teacher nonverbal behavior. The mean percentage of inter-rater agreement as shown in Tables 1 and 2 serves to further substantiate the instrument's content validity.

Campbell and Fiske (1959) propose two kinds of evidence about a measure are needed to justify the adequacy of the measures: (1) evidence that different measures of the construct yield similar results; and (2) evidence that the construct, as thus measured, can be differentiated from other constructs.

Table 1

Interrater Agreement of Encouraging

Ratings of Participant Observers

Teachers	Participant Observer Scores 1	2	3	4	5	6	7	# of Enc. Ratings	# of Disc. Ratings	% of Enc. Ratings
T_1	55	56	51	44	59	55	60	7	0	100%
T_2	41	43	57	37	57	51	44	6	1	85%
T_3	52	44	20	43	52	44	46	6	1	85%
T_4	59	60	56	49	58	38	49	6	1	85%
T_5	54	45	51	54	36	53	52	6	1	85%

Range: 10 - 39 Discourage (Disc.)

40 - 60 Encourage (Enc.)

Table 2

Interrater Agreement of Encouraging Ratings

of Nonparticipant Observers

Teachers	Nonparticipant Observer Scores 1	2	3	4	5	6	7	# of Enc. Ratings	# of Disc. Ratings	% of Enc. Ratings
T_1	29	41	32	21	28	25	30	1	6	15%
T_2	40	38	31	24	33	36	34	1	6	15%
T_3	33	39	45	26	48	58	45	4	3	57%
T_4	36	52	34	26	45	46	42	4	3	57%
T_5	41	43	42	26	46	52	44	6	1	85%

Range: 10 - 39 Discourage (Disc.)

40 - 60 Encourage (Enc.)

Evidence for (1) above can be found in the literature on nonverbal observation systems. Studies by Victoria,(1968),Teresa (1971), French (1970) and Galloway (1962) support the assumption that the nonverbal behavior of a teacher could be perceived in an encouraging or discouraging manner. Evidence was further established in the series of pilot studies administered.

Evidence for (2) above is primarily evidenced by title, i.e., the primary forces of the study were the nonverbal behaviors of the teacher. This can easily be differentiated from other similar studies on verbal behavior by Flanders (1964), Ryan (1961), Whithall (1949), and others.

Pilot Testing of Procedures

Three pilot tests were conducted prior to data collection to determine how accurately the TNBRS measured the variables under investigation. The subjects used in the pilot testings consisted of thirty ninth grade students in a public school system in Southwestern United States. These students were selected for three reasons: First, they were of the same age and grade level as the students in the study, proper. Secondly, the students had been with the same teacher most of the school year. Third, this grade level student has obtained a certain amount of sophistication for responding to the paper and pencil type instrument used to collect the data.

The pilot tests were administered to address the following concerns: (a) to determine if thirty-second intervals were sufficient to make an inference regarding teacher behaviors and to record the information within that time span; (b) to determine if subjects could specify the behavioral cues used by them in making their rating of teacher nonverbal behavior; and (c) to determine if the behaviors defined in the problem could be accurately ob-

served and recorded.

Video-taped segments of teachers in natural classroom settings were made for the purpose of collecting data in the pilot tests. The subjects viewed thirty-second segments with a built in time indicator (beep tone) as they used the instrument devised to assess the nonverbal behavior of the teacher.

The results of the pilot tests indicated that: (a) thirty-second time intervals were sufficient to make an inference regarding teacher behaviors and to record the information; (b) subjects could specify the behavior cues used by them in making their rating of teacher nonverbal behavior; (c) the behaviors defined in the problem could be observed and recorded.

Pre-Data Collection

The five teachers who volunteered to participate were video-taped in a natural classroom setting. In order to assure this, the researcher conducted a desensitizing procedure which involved continuous taping over a period of several days until both teachers and students were relaxed and acting naturally. The absence of the following behaviors served as indicators that desensitizing had taken place:

1. Teacher smiles at researcher in response to a students' behavior.
2. Teacher glances at camera constantly.
3. Student pays more attention to researcher than teacher.
4. Teacher has difficult time relaxing the students about the equipment.

Once each classroom had been desensitized, a thirty-minute video-tape was made. Each teacher was told that the study dealt with the social cli-

mate within the classroom. The terms "nonverbal," "encourage," "discourage," or "pupil perception" were not used in order to prevent teachers from becoming sensitized to these aspects of the study. Because the study required the use of participant observers, the teachers were told that the tapes could be available for a viewing by them if they so desired. It was felt that if the teachers knew that students in the classes would be asked to give an assessment of their behavior, the teachers might become overly sensitive during the taping. Therefore, the random sample of students used for each teacher was not make public until after the video tapes were secured.

Once the thirty-minute master tape was obtained, it was reviewed by the researcher in order to obtain the five minute segment most representative of encouraging/discouraging teacher behavior. The criteria for selection was based on the researcher's teaching experience and documented research on teacher behavior (Raymond, 1973; Whitfield, 1973; Victoria, 1968, Teresa, 1971; Flanders, 1964; Ryan, 1961).

Editing procedures allowed the researcher to make a copy on a second tape of the chosen segment only. This assured that both participant and nonparticipant observers viewed the same segments on each teacher. Editing further provided the researcher with a built-in time indicator for recording responses of the teacher behavior. Thirty-second interval indicators (beep tone) were built into the tapes during the editing process.

Data Collection

The procedure used with the TNBRS required the subjects to rate the overall encouraging/discouraging video-taped teaching segment every thirty seconds using the Likert type scale provided on the left portion of the TNBRS.

Time-unit means of recording responses of the subjects was employed to control the order and occurrences of perceived behaviors of the teacher, since research indicates that short time-span observations of behaviors are sufficient for recording perceptions of communicant's behavior (Bays, 1972; Shapiro, 1966; Flanders, 1964). Using this procedure, ten responses may be obtained from each tape.

The subjects viewed the video-taped segments twice. During the first viewing the subjects rated the degree of encouraging behavior they perceived every thirty seconds using the left portion of TNBRS. During the second viewing the subjects specified each cue or cues responsible for his rating using the right portion of the instrument by placing an "X" in the box under the specific cue(s). During the second viewing, the tape was stopped at the end of each thirty-second indicator and was not started again until all subjects indicated completion for that frame. The subjects were asked to specify, at most, three dominant behaviors used in making a rating. This was done for two reasons:

a. to determine the most important cues used in assessing teacher nonverbal behavior to be used later in data analysis; and
b. to insure that subjects were responding to the most important cues as opposed to listing every cue observed in the segment.

Statistical Procedures

Two statistical procedures were employed: (1) Analysis of Variance, and (2) Stepwise Multiple Regression Analysis.

The analysis of variance approach was used to compare the variance that occurred between the ratings of teachers' nonverbal behavioral cues by the par-

ticipant observers and the nonparticipant observers, and was used to test the first hypothesis of the study. The ANOVA determined the significance of the effect the independent variable-rater status (participant/nonparticipant) had upon the dependent variable-perception of teacher nonverbal behavior cue(s) (rating). Thus, an F test was computed to test the significance of the null hypothesis at $p \leq .05$.

The second statistical procedure was a stepwise multiple regression technique. This was computed in order to indicate the amount of variance of the ratings which could be accounted for by cues identified by the subjects. A stepwise solution was obtained using the thirteen behavioral cues on the TNBRS as predictor (independent) variables and the rating of the teacher behavior as the criterion (dependent) variable.

Both the analysis of variance technique and the multiple regression technique were computed separately on each teacher thus eliminating overall teacher effects. This was done in order to obtain an overall difference between the two groups, and subsequently to analyze separate group characteristics.

Findings

This study was designed to compare participant and nonparticipant observers' perception of teacher nonverbal behavior as having encouraging or discouraging affect qualities during a teaching-learning process. The following questions were central to the investigation:

1.0 Are similar nonverbal teacher behaviors perceived by the participant and nonparticipant observers in assessing the affective quality of teacher nonverbal behavior?

1.1 What nonverbal cues are identified by the participant and the nonparticipant observers in assessing the affective quality of tea-

cher nonverbal behavior?

2.0 To what extent do the nonverbal cues identified by the participant and nonparticipant observers predict the variance in participants' and nonparticipants' assessment of teacher nonverbal behavior?

In order to investigate these questions, the following null hypotheses were tested:

$H_0$1. There is no significant difference between participant and nonparticipant observers' assessment of the affective quality of teacher nonverbal behavior.

$H_0$2. There is no significant difference between the variance accounted for in the participants' and nonparticipants' rating of teacher nonverbal behavior as predicted by the presence of the nonverbal cues identified by the participants and nonparticipants.

The analysis of variance technique was used to test $H_0$1, while a stepwise multiple regression technique was employed to test $H_0$2.

Table 3 presents a summary of the analysis of variance test for the effect rater status (participant/nonparticipant) had upon their perception of the teacher nonverbal behavior. An examination of Table 3 reveals that the effect of rater status upon the perception of teacher nonverbal behavioral cues was significant at the .001 level. Therefore, the null hypothesis, that there is no significant difference between participant and nonparticipant observers' assessment of the affective quality of teacher nonverbal behavior, was rejected.

Table 3
Analysis of Variance for Effects of Rater
Status Upon Their Perception of
Teacher Nonverbal Behavior

Sources of Variation	DF	SS	MS	F	Prob.
Between Group	1	2436.7012	2436.7012	31.673	.000*
Within Group	68	5231.3730	76.9320		
Total	69	7668.0742			

* $p \leq .001$

The results, illustrated in Table 3, indicate that the mean rating score of the participants was significantly higher than the mean rating score of the nonparticipants.

In order to determine if the overall significant difference between the participant and nonparticipant observers' assessment of the nonverbal behavior of the teacher was largely due to observations of a specific teacher, a one-way analysis of variance was computed on each of the five teachers separately. These ANOVAS were used to test $H_0 1$ using the data collected on each teacher. The results of these ANOVAS are presented in Tables 4, 5, 6, 7. and 8 for teachers one through five, respectively.

Analysis of Tables 4 - 8 revealed that when separate ANOVAS were computed on each teacher the following results were obtained:

1. The ANOVAS on teachers one, two, and four indicate that there was a significant difference between participant and nonparticipant observers' assessment of the affective quality of teacher nonverbal

Table 4

Analysis of Variance for Effect of Rater Status Upon Their Perception of Teacher Nonverbal Behavior for Teacher One

Source	DF	SS	MS	F	F Prob.
Between Group	1	2162.5715	2162.5715	63.427	.000*
Within Group	12	409.1431	34.0953		
Total	13	2571.7146			

* $p \leq .001$

Table 5

Analysis of Variance for Effect of Rater Status Upon Their Perception of Teacher Nonverbal Behavior for Teacher Two

Source	DF	SS	MS	F	F Prob.
Between Group	1	631.1428	631.1428	13.966	.003*
Within Group	12	542.2859	45.1905		
Total	13	1173.4287			

* $p \leq .01$

Table 6
Analysis of Variance for Effect of Rater Status Upon Their Perception of Teacher Nonverbal Behavior for Teacher Three

Source	DF	SS	MS	F	F Prob.
Between Group	1	3.5000	3.5000	.031	.650
Within Group	12	1358.000	113.1667		
Total	13	1361.500			

Table 7
Analysis of Variance for Effect of Rater Status Upon Their Perception of Teacher Nonverbal Behavior for Teacher Four

Source	DF	SS	MS	F	F Prob.
Between Group	1	553.1423	553.1423	7.975	.015*
Within Group	12	832.2859	69.3571		
Total	13	1385.4287			

* $p \leq .05$

Table 8
Analysis of Variance for Effect of Rater Status Upon Their Perception of Teacher Nonverbal Behavior for Teacher Five

Source	DF	SS	MS	F	F Prob.
Between Group	1	178.5718	178.5718	3.375	.088
Within Group	12	634.8572	52.9048		
Total	13	813.4290			

behavior. The null hypothesis was rejected for teachers one, two, and four.

2. The ANOVAS on teachers three and five indicate that there was no significant difference between participant and nonparticipant observers' assessment of the affective quality of teacher nonverbal behavior. The null hypotheses was accepted for teachers three and five.

The results of the separate ANOVAS computed on each teacher are indicative that the differences are not due to observations of a specific teacher. Additionally, the results indicate a generalizable difference between participant and nonparticipant observers' assessment of the affective quality of teacher nonverbal behavior. It is interesting to note that the nonparticipant observers tended to rate the nonverbal behavior of the teacher as more discouraging than did the participant observers.

A stepwise multiple regression analysis with the thirteen behavioral cues as predictor variables and the degree of encouraging behavior (rating) as the

criterion variable was computed to test $H_0 2$. The testing necessitated the comparison of two separate regression analyses. A stepwise regression was computed for the nonparticipant observers on all five teachers. This regression was compared with the stepwise regression computed on the participant observers for all five teachers. The subjects' summated rating score and summated cue cited was used in the analysis since these scores accounted for the greatest amount of variance.

Findings relative to $H_0 2$ are presented in Tables 9 and 10. Table 9 presents statistics for the regression analysis on the participant observers, while Table 10 presents data for the regression analysis on the nonparticipant observers. The Tables list the variables entered at each step based on the degree of variance accounted for by the cue.

The data presented in Table 9 indicate that the linear combination of behavioral cues that significantly correlated with the ratings of teacher nonverbal behavior for the participants was Facial Expression, Walks Around the Class, No Eye Contact, and Tone of Voice. Table 9 further illustrates that the best predictors of rating for the participant observers were the total combination of Facial Expression to Illustrates at Board. The linear combination of the nonverbal cues that significantly correlated with the participant's rating of teacher behavior (Facial Expression to Tone of Voice) accounted for 27% of the variance in the participants' rating.

An examination of Table 10 indicates that for the nonparticipant observers, the linear combination of nonverbal cues that significantly correlated with their ratings were all the behavioral cues that entered the equation. Further examination of these results reveal that for the nonparticipant

Table 9

Summary of Stepwise Regression Using Behavioral Cues Cited by Participant Observers as Predictors of Rating of Teacher Nonverbal Behavior

Variables Entered	R	R^2	R^2 Change	F Ratio
1. Facial Expression	.344	.118	.118	4.43*
2. Walks Around	.418	.175	.057	3.39*
3. No Eye Contact	.484	.234	.059	3.16*
4. Tone of Voice	.519	.270	.036	2.78*
5. Use of Time	.537	.289	.019	2.36
6. Stands Over	.556	.309	.020	2.09
7. Eye Contact	.570	.324	.015	1.85
8. Does Not Come Close	.574	.329	.005	1.59
9. Head Motion	.576	.332	.003	1.38
10. Hand Motion	.577	.333	.001	1.20
11. Illustrate at Board	.600	.360	.002	1.06

* $p \leq .05$

observers, all thirteen behavioral cues were significantly correlated to their ratings. The final multitude R obtained for the nonparticipants was .751. This indicates that 56% of variance in ratings of teacher nonverbal behavior could be accounted for with the thirteen predictors that entered the equation for the nonparticipants.

The results of the multiple regression analyses computed on the two groups separately indicate a definite difference in the variance accounted for in the participants' and nonparticipants' rating as predicted by the presence of the nonverbal cues identified by the subjects.

Table 10

Summary of Stepwise Regression, Behavior Cues
Cited by Nonparticipant as Predictors of
Rating of Teacher Nonverbal Behavior

Variables Entered	R	R^2	R^2 Change	F Ratio
1. No Eye Contact	.506	.256	.256	11.34*
2. Time Use	.612	.374	.118	9.56*
3. Hand Motion	.651	.423	.050	7.60*
4. Eye Contact	.689	.475	.051	6.79*
5. Other	.709	.502	.027	5.84*
6. Tone of Voice	.721	.520	.018	5.05*
7. Stands Over	.735	.540	.020	4.53*
8. Facial Expression	.743	.552	.116	4.00*
9. Does Not Come Close	.746	.557	.005	3.49*
10. Body Contact	.747	.558	.001	3.03*
11. Illustrates at Board	.748	.560	.001	2.66*
12. Walks Around	.7503	.562	.002	2.36*
13. Head Motion	.7505	.563	.000	2.08*

* $p \leq .05$

Table 11 presents a summary of the findings reported in Tables 9 and 10 and also presents a summary of the variables entered at each step in the respective equations for the participants and nonparticipants; the multiple for the participants (R_p); the multiple for the nonparticipants (R_n).

The results shown in Table 11 indicate that a major difference existed in the order and relevance of predictors entering the equations for the two groups. For the participant observers, the behavioral cues "Body Contact" and "Other" did not enter the equation because they added no significance to the prediction.

Table 11

Summary of Stepwise Regression Analyses Using Nonverbal Cues Cited as Predictors of Subjects' Ratings of Teacher Nonverbal Behavior

Variables Entered for Participants	R_p	Variables Entered for Nonparticipants	R_n
Facial Expression	.344	No Eye Contact	.506
Walks Around	.418	Use of Time	.612
No Eye Contact	.483	Hand Motion	.651
Tone of Voice	.519	Eye Contact	.689
Use of Time	.537	Other	.409
Stands Over	.536	Tone of Voice	.721
Does Not Come Close	.570	Stands Over	.735
Head Motion	.576	Facial Expression	.743
Hand Motion	.577	Does Not Come Close	.746
Illustrates	.600	Body Contact	.747
		Illustrates	.749
		Walks Around	.7503
		Head Motion	.7505

For the nonparticipant observers all of the behavioral cues were entered into the equation. The fact that there was a difference in the order of entry and relevance of the predictor cues used to assess the behavior of the teacher implies that the linear combination of cues that significantly correlated with the rating for the two groups were quite different. Further examination of Table 11 reveals that the best single predictor of the rating of teacher

behavior was "Facial Expression" for the participant observers. For the nonparticipant observer the best single predictor was "No Eye Contact." These results are consistent with studies reported in the literature (Ekman and Friesen, 1971: Rosenfeld, 1966; Argyle, 1965).

The findings of the multiple regression analysis presented in Tables 9, 10, and 11 and described above has indicated a difference in the variance that could be accounted for in the subjects' ratings. Thus, the second null hypothesis--that there is no significant difference between the variance accounted for in the participants' and nonparticipants' rating of teacher nonverbal behavior as predicted by the presence of the nonverbal cues identified by the participants and nonparticipants--was rejected.

Summary

The findings of this study suggest, first, that participants and nonparticipants do not perceive the nonverbal behavior of the teacher similarly. The literature on perception suggests that the perception of a communicative act is of an individual nature, and is affected by various contextual factors (Combs, 1962, Mead, 1934; Lane and Beauchamp, 1959). This conjecture is supported by the findings of the current study.

Secondly, the findings of the study have shown that it is possible to define and demonstrate the relevance of a number of nonverbal cues that each group of raters used as predictors or reasons for their assessment of the teachers' behavior. The findings indicated a major difference in the order and relevance of predictors used for the two groups. This was reflected in the separate multiple regression analyses.

Additionally this study has delineated a number of behavior cues for the

two groups, which have substantial correlations with the subjects' ratings of teacher nonverbal behavior but low correlations with one another. This is indicative of the independence of categories of nonverbal cues used in the study.

Conclusions and Discussion

Several conclusions may be drawn as a result of the findings of the study. The most obvious conclusion is that participants and nonparticipants do not perceive the affective qualities of the teacher nonverbal behavior similarly. It was further concluded that participants and nonparticipants using the instrument had an adequate percentage of agreement within groups. This conclusion indicates that participants, although disagreeing with nonparticipants, tend to have a high degree of agreement among themselves. The same conclusion was drawn for the nonparticipants.

A second major conclusion is that nonverbal behavior of the teacher can be perceived as an encouraging or discouraging communicative act. The perceptions of the qualitative affect of the teacher nonverbal behavior can be measured and analyzed by use of video-taping of teachers in teaching-learning situations.

The findings that the participant observers tend to perceive the nonverbal behavior of the teacher much more encouraging than did the nonparticipant observers may be largely due to contextual factors which seems to explain the variances found in the ratings. The fact that the participants' and nonparticipants' ratings did not conform more closely may be a function of the following: (1) the participants had been with the teacher most of the school year and thus had experienced certain effects of her behavior; (2) the parti-

cipants based their perception of the teacher behavior on a different set of behavioral cues than did the nonparticipants; (3) the same behavior observed by the two groups were rated differently in some instances, i.e. a "Facial Expression" for one group was perceived as encouraging while that same facial expression was perceived as discouraging by the other group; (4) participants' observations were based on the totality of their prior experiences; (5) it may be argued that the nonparticipant observers by nature of their selection, have been more heavily exposed to educational, psychological, and curriculum research, thus influencing their perception.

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Appendix A

Teacher Nonverbal Behavior Rating Scale

Sex_____ Age_____ Race_____

Rating	Cues Responsible For Ratings													
	Facial Expression	Eye Contact	No Eye Contact	Head Motion	Hand Motion	Body Contact	Walks Around The Class	Does Not Come Close	Stands Over	Illustrates on Board	Tone of Voice	Use of Time	Other Cues Used
1. Discourage 1 2 3 4 5 6 Encourage													
2. Discourage 1 2 3 4 5 6 Encourage													
3. Discourage 1 2 3 4 5 6 Encourage													
4. Discourage 1 2 3 4 5 6 Encourage													
5. Discourage 1 2 3 4 5 6 Encourage													
6. Discourage 1 2 3 4 5 6 Encourage													
7. Discourage 1 2 3 4 5 6 Encourage													
8. Discourage 1 2 3 4 5 6 Encourage													
9. Discourage 1 2 3 4 5 6 Encourage													
10. Discourage 1 2 3 4 5 6 Encourage													

Appendix B

This appendix contains a presentation of the callapsed responses of seventy-five ninth grade students to the pilot questionnaire. Since the results of this pilot helped support the cues identified on the TNBRS, it was felt that it should be included here. Only the nonverbal responses are listed below. The number in parenthesis indicates the number of times a particular cue was used in the questionnaire.

Results of Pilot Questionnaire

1. What does the teacher do that encourages you to learn?
   * She moves around helping you (21)
   * She smiles (40)
   * She explains things at the board (25)
   * Has a friendly hello (4)
   * The way she looks at you (18)
   * Shows a pleasant expression (12)
   * Takes time to explain (14)
   * Seems really pleased when you do good (5)
   * Shows sympathy and understanding (4)
   * She is polite (9)
   * Does not yell at you (5)
   * Cares about us (10)
   * Use hand and things to really stress a point (12)
   * Shows patience in her expression (8)
   * Always in a good mood (3)
   * Comes close to you when she is explaining to you (17)
   * She looks happy (5)
   * Nods when you do good or she agrees with you (19)
   * Voice is pleasant when she talks to you (6)

* Her gestures (2)

* Tries to walk around to everybody to give help (19)

* *

2. What does your teacher do that discourages your learning?

* Talks in different tones (18)

* Embarrass you

* Sits at her desk at all times (12)

* Looks real mean at you (10)

* Always writing on the board, never explaining to you (8)

* The way she looks at you (29)

* Her attitude (10)

* She frowns when you are wrong (15)

* Dull "humdrum" schedule (2)

* Goes too fast (18)

* Unfriendly actions and expressions (3)

* Does not show patience (20)

* Always picking and point at you (5)

* Looks at me like I'm dumb (15)

* Keeps the same dull expression (3)

* Does not give us time to finish the work (14)

* She is a grouch (3)

* Too old to teach (1)

* Shows she could care less if you learn or not (15)

* Puts you in the back of the room (5)

* She sits at her desk all the time (12)

* Fiddling with her hair all the time (3)

* She looks so blank (3)

* Go around smiling all the time when there is nothing to smile about (3)
* Being false "putting on" (2)
* Say one thing and meaning another (4)
* Stands over you while you are working (7)
* Stands in the same position all the time (5)
* Makes weird facial expressions (8)
* Stares or glares at you (4)
* Snap his finger at people (3)
* When she is moody (3)
* Does not speak clearly (11)
* Dress sloppy (6)